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# Audio Research VTM 200

With no less than six  
6550 output valves each,  
these massive 200W  
monoblocks uphold  
the ARC tube tradition

WORDS: MARTIN COLLOMS

PICTURES: TONY PETCH

PRICE	£14,000/pair
SUPPLIER	Absolute Sounds
CONTACT	020 8971 3909

**Valve or tube power** amplifiers generally come in one of two forms: the more powerful push-pull variety or the modestly-rated single ended (SE) type.

The choice is clear enough for the designer. If the product is to compete in the solid-state arena and be associated with some of the more power-hungry loudspeaker systems, it must be powerful: 50W per channel is a viable lower limit, particularly if the amplifier is to provide reasonable tolerance of the electrical loading which high quality loudspeakers may impose. Only the very largest and most costly single-ended vacuum-tube amps need apply, and even then some loudspeaker mismatch is likely — resulting in a compromise. Single-ended designs are particularly favoured for a highly natural tonality, and a vivacious, expressive musical dynamic — when their creators manage to express these qualities in the design. Those aspects are often seen at their very best in the lower 5 to 15W power range.

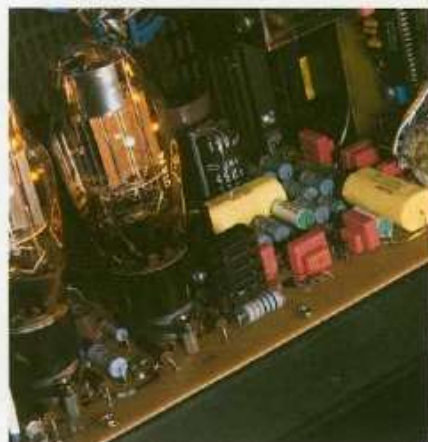
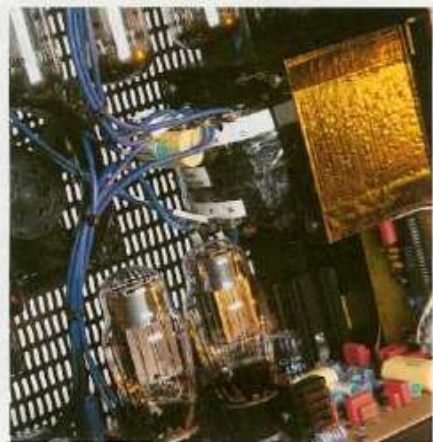
Some manufacturers make all kinds of tube amplifier while two US stalwarts — Audio Research Corporation and Conrad-Johnson — have chosen to design with classic push-pull technology rather than

single-ended. The much greater operating efficiency possible with this technique can extract more power and bandwidth from a given size of output transformer, allowing high power in practical sizes.

The Audio Research VTM 200 is an all-tube monoblock power amp capable of 200W per channel. Its counterpart in the Conrad-Johnson range is the well established Premier 8 but there's a clear difference between the two — the CJ is designed for a single-ended phono signal connection while the Audio Research requires a fully-balanced input signal. The CJ is convection cooled with vertically orientated tubes, and the ARC is an enclosed box model, with horizontal tubes and a two-speed cooling fan, venting via slotted covers. (Even with the amplifier behind the speakers, I did find that at lower volume settings I could hear the fans even set at 'slow', although this was more like white noise than an annoying identifiable 'whine'.)

Built on an imposing scale, the VTM 200 has a simple classic ARC fascia in satin alloy or black, with carrying handles. The latter are welcome provisions as each amp weighs 34kg, about 75 lbs. They come supplied with the valves shrink-wrapped in foam, and your dealer should install them for you, as the full procedure takes about two hours. I know, because I had to do it. At £14,000 a pair, the 200s is intended to provide much of the performance of the REF 300 for a more competitive price.

During the initial warm-up phase you are advised



to monitor the bias levels of the six output valves per channel. A three-LED current monitor is present on the rear panel and together with a selector switch it is easy to balance and monitor the idle currents. When the valve/tube set begins to go significantly out of tolerance, the whole set should be replaced as it is factory matched.

To suit a wider range of loudspeakers, matching taps are provided for 16, 8 or 4 ohms nominal loads. The terminals are unshielded gold-plated binders. At full power the 200 draws up to 850W, while it idles at a pretty hefty 400W — not an amplifier you would need or want to run all the time! Audio Research notes that a good 2000 hours of output tube life will flash by in just 84 days of continuous operation!

This power amplifier demonstrates a continuing evolution in design, with the original US-made tubes, such as the GE 6550, replaced by Russian Svetlanas. That 200W of power is generated by push-pull circuitry, with three pairs of 6550s per channel. These operate into the balanced, centre-tapped multi-wound output transformer, with the cathodes fully coupled via the secondary winding. This is a massive transformer, a masterpiece of wound component technology.

Powerful 6L6GC driver tubes are fitted while a new compact double triode has been introduced, the military grade 6N1P, in place of the previous wide bandwidth 6992. A pair of 6AS7G power triodes provide supply regulation. Loop negative feedback is reduced from that in earlier models, to 12dB. Power switch-on is relay controlled and may be remotely operated via the industry-standard 12V control line.

This is a hybrid design in that the input circuitry employs differentially balanced, low-noise J-FETs to obtain input matching and common mode rejection for balanced sources. Circuit boards are phenolic based, preferred to glass/epoxy for sound quality. Top-quality polypropylene decoupling and supply capacitors are used, including REL and Multi-Caps. The input is DC coupled with a 438 joule reservoir capacity allowing full power delivery to the lowest frequencies. From switch-on, the sound significantly

improved over the first 10 minutes or so; then it got only slightly better after a subsequent 30 minutes use. The 4 ohms tap helped to give the best sounding frequency balance with Wilson speakers, while the 8 ohms setting was fine for the rest of the speakers.

### SOUND QUALITY

First impressions were quite exciting. The VTM 200 sounded lively and open, apparently leaving the big Krells dulled, and even withdrawn by comparison. Detail was well resolved with that familiar ARC 'high definition' trademark apparent. Image focus was crisply rendered, leading musical lines well projected and standing out from the mix.

Breadth and depth were present in good measure, with the soundstage drawn on an appropriately large

🔍 Inside: high-quality components are mounted on a phenolic circuit board

**At full power the 200 draws up to 850W while it idles at a pretty hefty 400W, not an amplifier you would need or want to run all the time**

scale. But with further extended listening, this amp's performance stuck at the 'very worthy' level of 28 points on my usual scoring. Certainly of audiophile quality, it nonetheless remained some distance from the heights scaled by some of its competitors.

First of all, I found that the 200 sounded distinctly and consistently bright. This was more than the equivalent of a touch of lift on a tone control. It was allied to a trace of glaze, an insistent over-projection of the treble, leaving the high treble verging on a 'zingy' coloration. In my systems, even with repeated change-overs, I didn't succeed in fully suppressing this brightness.

In the mid, it sounded more 'mechanical' than the references and while the bass was impressively firm and extended, it still only rated 'good plus' despite the exceptional execution of this tube technology.

There was also another issue concerning listener involvement. I found that the upbeat 'go for it' quality so evident in the Audio Research Reference Two controller was not expressed well by this power amp. Underlying those promising first impressions

was a sense of inner muddle, a degree of failure to tie up all the musical strands, and all points in the frequency range. Timing tended to a mere 'above average' and jazz material didn't jam properly together — the end result was felt to be rather 'hi-fi'.

## CONCLUSION

Technical reviewers hoping to correlate test results with sound quality are frequently confused by a low or zero feedback single-ended tube amp, which may give a good sound, but poor test results. You could hardly wish for a better technical performance from a high power valve amp than the VTM 200, and although the sound was undeniably good, for me it just did not have that special magic that would set it apart from the rest.

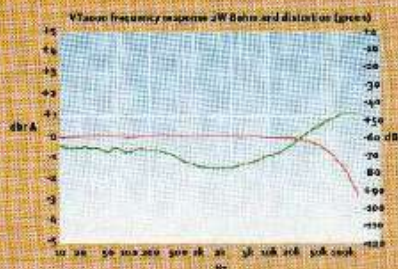
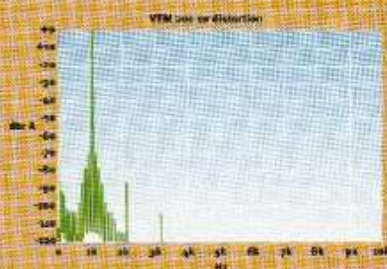
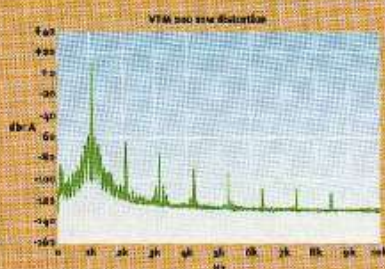
Seemingly all the right ingredients are there — all-tube regulation plus fabulous output transformers; a welcome, even-order dominant distortion spectrum; a facility for accurate tube

biasing; and moderate negative feedback. It is very powerful and easily meets its high specification. Good rather than great, the VTM 200 does a more than competent job for its class, and performs precisely to spec. It should be taken seriously by Audio Research fans, especially if that touch of brightness I experienced is to your liking, or even suits your system. **VB**

### THE SYSTEM

Initial experiments were done during the running-in phase, which took more than a week to complete. These related to loudspeaker matching (Wilson System 6, Tannoy Dimension 12, Quad ESL63, BBC LS3/5A 15 ohms), placement, preferred output taps and the optimum cables. Sources were Linn LP12 Lingo/Naim ARO/van den Hul GLA IV, Krell SPS 255, Marantz CD-7, Naim CDS I, with Audio Research Reference Phono and Reference Two line stage (as well as Conrad-Johnson ART and Audio Synthesis Pro Passion). Comparison amplifiers included Krell FPB 650M, Naim NAP250 and Conrad-Johnson Premier 8a. A high quality dedicated spur provided clean power at a low source impedance. Cables included Transparent, Siltech, van den Hul, Kimber.

### LAB REPORT



Technically, Audio Research is a master of push-pull tube amplifier design. The 200 returned an excellent test performance, an example of what's possible, and with only a modest 12dB of global negative feedback. It comfortably equalled a number of solid-state power amps. Obviously, the lab findings may appear to conflict with the sound quality report, but this is not for the first time!

The amplifier had no problem whatsoever in delivering its rated power of 200W 8ohms, pre-clipping. It also produced this performance right to the band extremes, 20Hz and 20kHz. Its typical maximum power was around 240W per channel. Given the load matching facility, and in contrast to many other valve models, this power will also be available into 4 and 16 ohms loads. However, very little increase was available on pulse testing and if mismatched into a load the power fell rapidly. Thus a 4 ohms load on the 8 ohms tap gave 17.9dBW, a fall of nearly 6dB in level over 8 ohms, and a true power of 124W. This related to the available peak current of +7.8, -7.9A, fair enough, but not sufficient in my view for a 'good' rating for load tolerance.

Output impedance via the 8 ohm tap was moderate at a little under half an ohm. With a system such as the Wilson System 6, or a B&W Nautilus Box, this was sufficient to impart an

audible if mild depression of about 0.8dB in the low mid and bass register. Perhaps that's why I preferred the 4 ohm tap with the System 6. Distortion was very low in the Audio Research tradition, better than 0.3% at rated level except at the lowest frequencies, and tending toward a really low 0.01% (-80dB) at 1W.

Aside from some mild contamination at the supply line frequency, the harmonic spectrum at 10W looked tidy, with a desirable, near monotonic array of even and odd, despite the push-pull configuration (which tends to cancel even harmonics).

From the 1W distortion result, you might think that an 'SE' characteristic had been deliberately engineered into the design, judging by the dominance of the second harmonic at an admittedly low -88dB. Note the line frequency components clustered around the fundamental. I couldn't eliminate these from the test result.

High frequency intermodulation was equally good, approaching -70dB, 0.033% at 10W, and about -76dB by 1W — impressive!

The amplifier proved relatively easy to drive, with the high 200k ohm balanced input impedance requiring 12.3mV for 1W, 1.853V (balanced) to hit full level. DC offsets were negligible when well biased, while channel balance was better than 0.2dB. The wide

frequency response is evident, reading better than 5Hz to 65kHz for -0.5dB points and 0.5Hz to 235kHz for -3dB. The trace shows the fine distortion trend at a 2W power over the full measurement range, this trace including system noise contribution.

Signal-to-noise ratios were fine at -116.7 dB relative to full level, while the broad band reading showed the presence of a touch of supply frequency hum, measuring -105dB over a 22Hz to 22kHz range. It was quiet enough for even the more sensitive loudspeakers not to show audible noise.

TEST RESULTS		Audio Research VTM 200		
Rated power, 80/4Ω	200W/200W (23dBW/20dBW*)	20Hz	1kHz	20kHz
Power, 8Ω continuous (dBW*)		23.8	23.8	24.2
Power, 20Hz 4Ω continuous (dBW*)		17.5	17.6	18.2
Burst power, 10ms, 5kHz, 8Ω/4 Ω (dBW*)		—	24	—
Distortion (THD), rated power, 8Ω (dB)		-42	-51.1	-51.3
Distortion (THD), at 0dBW, 8Ω (dB)		-65.3	-78.3	-68.9
Intermod, 190Hz+20kHz at 0dB (dB)				-75.6
Peak current, 2ms via 4Ω, 2.2ΩF			-7.8A	-7.9A
Noise, full level, 22-22kHz 2/A wtd (dB)			-105.6	-106.7
Noise, 0dBW, 22-22kHz 2/A wtd (dB)			-82.3	-93.2
DC offset			<2mV	
Frequency response, -0.5dB			<5Hz-65kHz	
Input sensitivity 1V (IHF), 0dBW			12.3mV	
Input impedance			200k ohms	

\*where 0dBW = 2.83V, or 1W into 8 ohms